

CLAIMS

1. A dialling error notification system for visiting subscribers in a visited mobile telephony network (100), a visiting subscriber being a subscriber from a home mobile telephony network (200) different from the visited mobile telephony network (100), characterised in that it comprises:

a first node (11) of the visited mobile telephony network (100) comprising means for analysing a number dialled by a visiting subscriber (201) and determining whether said dialled number complies with at least one predetermined error criterion; and

means for sending a short message with a dialling error notification to the visiting subscriber if said dialled number complies with at least one predetermined error criterion;

means for determining the identity of the home mobile telephony network (200) based on the International Mobile Subscriber Identity of the visiting subscriber.

2.- A system according to claim 1, characterised in that said first node is a Service Control Point (11) of the visited mobile telephony network (100).

3.- A system according to any of the previous claims, characterised in that it comprises:

means for sending a message (M1) to an SS7-IP gateway (16) from the first node (11) of the visited mobile telephony network (100), said message (M1) being a message with instructions to send the short message;

means for sending an http message to a short message sending server (18) from said SS7-IP gateway (16), said http message being a message with instructions to send the short message;

means for sending the short message addressed to the visiting subscriber (201) to a Short Message Service Centre (10) of the visited network (100) from said short message sending server (18), upon receipt of said instructions by said short message sending server.

4.- A system according to any of the previous claims, characterised in that it comprises means for selecting text for the short message based on the identity of the home mobile telephony network as determined by the International Mobile Subscriber Identity of the visiting subscriber.

5.- A system according to claim 3, characterised in that the short message sending server (18) includes a database with short message texts and means for selecting a short message text based on an indicator code included in the http

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message received from the SS7-IP gateway (16).

6.- A system according to claim 3, characterised in that the http message includes at least one indicator code of a short message text and the mobile telephone number of the visiting subscriber (201) to whom the short message must be sent.

5 7.- A system according to any of the previous claims, characterised in that it comprises means for sending an initial control set-up message to a first node (11), comprising at least the following data: the telephone number dialled by the visiting subscriber; the mobile telephone number of the visiting subscriber; and the International Mobile Subscriber Identity of the visiting subscriber.

10 8.- A system according to claim 7, characterised in that the means for sending an initial control set-up message to the first node (11) are comprised in the Mobile Switching Centres (5, 6) of the visited mobile telephony network, such that when a visiting subscriber in a cell (2) corresponding to a Mobile Switching Centre (5) dials a telephone number, said Mobile Switching Centre sends the initial control set-up
15 message to the first node (11).

9.- A system according to any of the previous claims, characterised in that it comprises control means for preventing a second short message with a dialling error notification from being sent to a visiting subscriber if the time elapsed since a first short message with a dialling error notification was sent to said visiting subscriber is less
20 than a predetermined minimum time.

10.- A system according to any of the previous claims, characterised in that the error criteria include one or several criteria selected from the group comprising the following criteria:

- 25 - the number dialled begins with "+" followed by a sign different from a figure C, $1 \leq C \leq 9$;
- the number dialled begins with "00" followed by a sign different from a figure C, $1 \leq C \leq 9$;
- the number dialled is a 9-figure number beginning with a figure which is not 6, 7, 8 or 9;
- 30 - the number dialled begins with "+" or "00" followed by a country code followed by an escape code not applicable for international dialling to said country; and
- the number dialled is a number with fewer than 9 figures which is not a short code.

35 11. A dialling error notification method for visiting subscribers in a visited mobile telephony network (100), a visiting subscriber being a subscriber from a home mobile

telephony network (200) different from the visited mobile telephony network (100), characterised in that it comprises the steps of:

(a) analysing in a first node (11) of the visited mobile telephony network (100) a number dialled by the visiting subscriber and determining whether said number dialled
5 complies with at least one predetermined error criterion;

(b) sending at least one short message (SM) to the visiting subscriber if said dialled number complies with at least one predetermined error criterion, said short message comprising at least one dialling error notification;

(c) determining the identity of the home mobile telephony network based on the
10 International Mobile Subscriber Identity of the visiting subscriber.

12.- A method according to claim 11, characterised in that the first node is a Service Control Point (11) of the visited mobile telephony network (100).

13.- A method according to any of claims 11 and 12, characterised in that

(d) based on the identity home mobile telephony network of the visiting
15 subscriber as determined by the International Mobile Subscriber Identity of the visiting subscriber, it is determined whether the visiting subscriber has the right to a dialling error notification service.

14.- A method according to claim 13, characterised in that steps (c) and (d) are carried out before step (b).

20 15.- A method according to claim 14, characterised in that steps (c) and (d) are carried out before step (a).

16. A method according to any of claims 11 to 15, characterised in that step (b) comprises:

- sending a message (M1) to an SS7-IP gateway (16) from a Service Control
25 Point (11), said message (M1) being a message with instructions to send the short message;

- sending an http message to a short message sending server (18) from said SS7-IP gateway, said http message being a message with instructions to send the short message;

30 - sending the short message addressed to the visiting subscriber (201) to a Short Message Service Centre (10) of the visited network (100) from said server (18), upon receipt of said instructions by said short message sending server.

17.- A method according to any of claims 11 to 16, characterised in that text for the short message is selected based on the identity of the home mobile telephony
35 network as determined by the International Mobile Subscriber Identity of the visiting

subscriber.

18.- A method according to claim 17 when depending from claim 16, characterised in that the text is selected from a plurality of texts comprised in a database of the short message sending server (18) based on an indicator code
5 included in the http message received from the SS7-IP gateway (16).

19.- A method according to claim 16, characterised in that the http message includes at least one indicator code indicating a short message text and the mobile telephone number of the visiting subscriber (201) to whom the short message must be sent.

10 20.- A method according to any of claims 11 to 19, characterised in that it comprises a first step comprising sending an initial control set-up message to the first node (11), comprising at least the following data: the telephone number dialled by the visiting subscriber; the mobile telephone number of the visiting subscriber; and the International Mobile Subscriber Identity of the visiting subscriber.

15 21.- A method according to claim 20, characterised in that the initial control set-up message is sent from an Mobile Switching Centre (5) of the visited mobile telephony network (100) corresponding to the cell (2) in which the visiting subscriber is located.

22.- A method according to any of claims 11 to 21, characterised in that before
20 sending a short message with a dialling error notification to the visiting subscriber, it is checked that a predetermined minimum time has elapsed since a previous short message with a dialling error notification was sent to the same visiting subscriber, and if said predetermined minimum time has not elapsed, the short message with a dialling error notification is not sent.

23.- A method according to any of claims 11 to 22, characterised in that the
25 error criteria include one or several criteria selected from the group comprising the following criteria:

- the number dialled begins with "+" followed by a sign different from a figure C,
1 ≤ C ≤ 9;
- the number dialled begins with "00" followed by a sign different from a figure
30 C, 1 ≤ C ≤ 9;
- the number dialled is a 9-figure number beginning with a figure which is not 6, 7, 8 or 9;
- the number dialled begins with "+" or "00" followed by a country code followed by an escape code not applicable for international dialling to said country; and
- 35 - the number dialled is a number with fewer than 9 figures which is not a short

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code.

24.- A method according to any of claims 11 to 23, characterised in that it is only carried out for visiting subscribers who are not provided with CAMEL service O-CSI flag.

AMENDED SHEET